

111.5 - Rock and Minerals (powder form)

PLEASE NOTE: The tables are presented to facilitate comparisons among a family of materials to help customers select the best SRM for their needs. For specific values and uncertainties, the certificate is the only official source.

SRM	1d	70b	81a	88b	99b	165a	278	607	688	1413	2429	2780a
Description	Limestone, Argillaceous	Potassium Feldspar	Glass Sand	Dolomitic Limestone	Soda Feldspar	Glass Sand	Obsidian Rock	Potassium Feldspar	Basalt Rock	High Alumina Sand	Flue Gas Desulfurization Gypsum	Hard Rock Mine Waste
Unit of Issue	(70 g)	(1 bottle x 40g)	(75 g)	(75 g)	(40 g)	(75 g)	(35 g)	(5 g)	(60 g)	(75 g)	(1 bottle x 200 g)	(50 g)

(Concentrations are in mass fractions, in %, unless noted by an asterisk for mg/kg)

⁸⁷ Sr/ ⁸⁶ Sr								1.20039
Aluminum (Al)		7.98		10.36				8.43
Aluminum Oxide (Al ₂ O ₃)	0.526		0.66	0.336		0.059	14.15	17.36
Antimony (Sb)								18.3*
Arsenic (As)								2.53* 65.9*
Barium (Ba)		28.2*		1409*				49.6* 0.093
Barium oxide (BaO)	0.0033				(1140*)			0.12
Beryllium (Be)	(0.1)*			(2.8*)				1.1*
Bismuth (Bi)								45*
Boron (B)								(27*)
Cadmium (Cd)	(0.3)*							4.8*
Calcium (Ca)		0.1770		1.18*				0.247
Calcium oxide (CaO)	52.85		29.95		0.983		(12.17) 0.74	31.93
Carbon (C)	11.50							0.19
Cerium (Ce)	(4)*							67.7*

(Concentrations are in mass fractions, in %, unless noted by an asterisk for mg/kg)

Cesium (Cs)	(0.4)*		(2.5*)					8.3*
Chlorine (Cl)	(130)*							(23.5*)
Chromium (Cr)		(0.7*)						2.74* 205*
Chromium Trioxide (Cr ₂ O ₃)	0.0012	46*		(1*)	(6.1*)		332*	
Cobalt (Co)								16.5*
Copper (Cu)				5.9*				240*
Dysprosium (Dy)	(0.6)*							3.1*
Erbium (Er)	(0.4)*							2.0*
Europium (Eu)	(0.1)*							0.9*

**Refer to certificate to ascertain if the value reported represents total iron or species-specific iron.

- Certified values are normal font

- Reference values are italicized

- Values in parentheses are for information only

111.5 - Rock and Minerals (powder form)

PLEASE NOTE: The tables are presented to facilitate comparisons among a family of materials to help customers select the best SRM for their needs. For specific values and uncertainties, the certificate is the only official source.

FeO**				1.36		7.64	
Ferric Oxide (Fe₂O₃**)	0.3191	0.082	0.277	0.012	2.04	10.35	0.24
Fluorine (F)	(160)*						3.2*
Gadolinium (Gd)	(0.5)*						
Gallium (Ga)	(1)*		(15*)				21*
Germanium (Ge)							(<6*)
Gold (Au)							6.6*

(Concentrations are in mass fractions, in %, unless noted by an asterisk for mg/kg)

Hafnium (Hf)							5.5*
Holmium (Ho)	(0.1)*						0.7*
Iridium (Ir)							1.65*
Iron (Fe)	0.13		278.7*				8.75
Iron oxide (Fe₂O₃)						0.2357	
Lanthanum (La)	(4)*		(1.9*)				34.4*
Lead (Pb)	57*		71.2*	16.4*		0.763*	0.665
Lithium (Li)			(7.9*)				14*
Loss on Ignition	41.57	(<0.5)	(46.98)				11.1
Lutetium (Lu)							0.33*
Magnesium (Mg)	298*					(12.1*)	0.465
Magnesium oxide (MgO)	0.301		21.03	(0.23)	(8.4)	0.06	0.0431
Manganese (Mn)	0.0209	63*	0.0160	17.47*	0.052	0.167	490*
Mercury (Hg)						0.778*	(0.2*)
Molybdenum (Mo)							25.0*
Neodymium (Nd)	(3)*						28.3*

(Concentrations are in mass fractions, in %, unless noted by an asterisk for mg/kg)

Nickel (Ni)	(4)*			3.6*			95*
Niobium (Nb)	(0.7)*						20*
Phosphorus (P)	790*		44*				286*

**Refer to certificate to ascertain if the value reported represents total iron or species-specific iron.

- Certified values are normal font
- Reference values are italicized
- Values in parentheses are for information only

111.5 - Rock and Minerals (powder form)

PLEASE NOTE: The tables are presented to facilitate comparisons among a family of materials to help customers select the best SRM for their needs. For specific values and uncertainties, the certificate is the only official source.

Phosphorus Oxide (P₂O₅)	0.0413	0.0044	0.036	0.134	0.01560	
Potassium (K)		6.33	3.09		(9.6*)	3.99
Potassium Oxide (K₂O)	0.1358	0.1030	4.16	0.187	3.94	0.04587
Praseodymium (Pr)	(0.6)*					8*
Rhenium (Re)						(0.003*)
Rubidium (Rb)		495*	72.6*			220*
Rubidium Oxide (Rb₂O)	(Rb 6)*		127.5*	523.96*	1.91*	
Samarium (Sm)	(0.5)*					4.7*
Scandium (Sc)						15.6*
Selenium (Se)					5.27*	(6*)
Silicon (Si)	34.4	32.07				24.1
Silicon Dioxide (SiO₂)	4.080	1.13	73.05	48.4	82.77	0.810
Silver (Ag)						72.5*

(Concentrations are in mass fractions, in %, unless noted by an asterisk for mg/kg)

Sodium (Na)	2.36	5.25		(11.6*)	0.108	
Sodium Oxide (Na₂O)	0.0109	0.0290	4.84	2.15	1.75	
Strontium (Sr)	27*	444*			328.9*	121*
Strontium oxide (SrO)	0.0303	0.0076	63.5*	65.485*	169.2*	
Sulfur (S)	0.1028					8.85
Tantalum (Ta)						1.2*
Tellurium (Te)						22*
Terbium (Tb)	(0.09)*					0.5*
Thallium (Tl)						5.5*
Thorium (Th)	(0.5)*		12.4*			12.0*
Thulium (Tm)						0.31*
Tin (Sn)	(1)*					7.2*
Titanium (Ti)	32*		0.54*			0.643
Titanium Dioxide (TiO₂)	0.0306	0.12 (0.016)	0.011 0.245	1.17	0.11	0.020
Tungsten (W)						17.4*
Uranium (U)	(1)*		4.58*			4.0*

**Refer to certificate to ascertain if the value reported represents total iron or species-specific iron.

- Certified values are normal font
- Reference values are italicized
- Values in parentheses are for information only

111.5 - Rock and Minerals (powder form)

PLEASE NOTE: The tables are presented to facilitate comparisons among a family of materials to help customers select the best SRM for their needs. For specific values and uncertainties, the certificate is the only official source.

(Concentrations are in mass fractions, in %, unless noted by an asterisk for mg/kg)

Vanadium (V)	(10)*	<i>0.93*</i>	152*
Ytterbium (Yb)	(0.3)*		2*
Yttrium (Y)	(5)*	(1.6*)	18*
Zinc (Zn)		7.7*	(2.6*)
Zinc oxide (ZnO)	0.0022		0.102
Zirconium (Zr)			206*
Zirconium dioxide (ZrO₂)	0.034	0.006	

**Refer to certificate to ascertain if the value reported represents total iron or species-specific iron.

- Certified values are normal font
- Reference values are italicized
- Values in parentheses are for information only